

Amendments to the Claims

This listing of claims will replace all prior versions, and listings of claims, in the application.

Listing of Claims:

1. (original) A crystal of the ZAP-70 kinase comprising the catalytic domain of ZAP-70 kinase with a unit cell dimension of $a = 35.77 \pm 5$ Ångstroms, $b = 57.56 \pm 5$ Ångstroms, $c = 80.20 \pm 5$ Ångstroms; $\alpha = 68.97 \pm 5$ degrees, $\beta = 89.83 \pm 5$ degrees, $\gamma = 89.95 \pm 5$ degrees.
2. (original) A crystal of the ZAP-70 kinase comprising the catalytic domain of ZAP-70 kinase wherein said catalytic domain has a three-dimensional structure comprising the atomic structure coordinates of Table 1.
3. (currently amended) A crystal of claims 1 or 2 wherein the catalytic domain of ZAP-70 kinase comprises the sequence of SEQ ID. No. 2, fragment or a homologue thereof.
4. (original) A crystal of claim 3 wherein the catalytic domain of ZAP-70 kinase comprises at least the ATP-binding site.
5. (currently amended) A crystal of ~~any of~~ claims 1-4 bound to at least one ligand or low molecular weight compound.
6. (original) A computer readable medium comprising data storage material encoded with computer readable data wherein said data comprises the atomic coordinates of Table 1 comprising the catalytic domain of ZAP-70 kinase.
7. (original) A method for making a crystal of a ZAP-70 kinase comprising the steps of:
 - (i) purification of the full-length ZAP-70 kinase of SEQ ID No.1
 - (ii) proteolytic domain definition
 - (iii) expression of the full-length ZAP-70 kinase of SEQ ID No.1 flanked by protease recognition sequences to facilitate proteolytic release of the desired domain of ZAP-70
 - (iv) expression of the full-length ZAP-70 kinase of step (iii) in a suitable host cell
 - (v) controlled proteolysis of the desired domain at protease recognition sites
 - (vi) rapid purification of the desired ZAP-70 domain.
8. (original) A method according to Claim 7 wherein the domain comprises the catalytic domain of ZAP-70 kinase of SEQ ID No.2, fragment or a homologue thereof.

9. (currently amended) A method according to Claim 7 ~~and 8~~ wherein the catalytic domain of ZAP-70, fragment or homologue thereof is bound to at least one ligand or low molecule weight chemical compound at any step prior to crystallization.
10. (original) A method of determining the three-dimensional structure of the catalytic domain of ZAP-70 comprising:
- (i) crystallization of ZAP-70 kinase comprising the catalytic domain of ZAP-70 (SEQ ID No.2), fragment or homologue thereof
 - (ii) utilizing the atomic coordinates of Table 1 in whole or in part to determine the three dimensional structure of the catalytic domain of ZAP-70, fragment or homologue thereof.
11. (original) A method for determining the three-dimensional structure of a complex comprising the catalytic domain of ZAP-70 kinase (SEQ ID No.2), fragment or homologue thereof bound to at least one ligand comprising:
- (i) obtaining x-ray diffraction data for crystals of the complex
 - (ii) utilizing the atomic coordinates of Table 1 in whole or in part to define the three-dimensional structure of the complex.
12. (original) A method of identifying a ligand or low molecular weight compound that binds to the catalytic domain of ZAP-70 kinase comprising the steps of:
- (i) using the three dimensional structure of the catalytic domain of ZAP-70 kinase derived in whole or in part from the set of atomic coordinates in Table 1 to select a potential ligand or low molecular weight compound that binds to the catalytic domain of ZAP-70
 - (ii) selecting those ligands or low molecular weight compounds that bind to the catalytic domain of ZAP-70.
13. (original) A method of identifying a ligand or low molecular weight compound that binds to the catalytic domain of ZAP-70 kinase according to Claim 11 wherein the catalytic domain of ZAP-70 kinase comprises at least the ATP-binding site of said domain.
14. (currently amended) A method of Claims 12-13 for use in selecting ligands which inhibit the biological activity of ZAP-70 kinase.
15. (original) A method of designing a ligand or low molecular weight compound capable of binding to ZAP-70 catalytic domain comprising:
- (i) using the atomic coordinates of Table 1 in whole or in part to determine the three dimensional structure of ZAP-70 catalytic domain
 - (ii) probing the said catalytic domain of ZAP-70 with a candidate ligands or low molecular weight compounds to determine which bind to the catalytic domain of ZAP-70
 - (iii) selecting those ligands or low molecular weight compounds which bind to the catalytic

domain of ZAP-70

(iv) modifying those ligands or low molecular weight compounds which bind to maximize physical binding properties such as Volubility, affinity, specificity or potency.

16. (original) A method according to Claim 15 wherein the candidate ligands or low molecular weight compounds are screened in silica.

17. (currently amended) A method according to Claims 15—~~16~~ for use in designing ligands which inhibit the biological activity of ZAP-70 kinase.

18. (currently amended) A pharmaceutical composition comprising a ligand identified by the methods of Claims 12-14 for use of treatment of diseases and conditions involving T-cell and lymphocyte activation.